

REMARKS/ARGUMENTS

Applicant respectfully traverses and requests reconsideration.

The Examiner is thanked for the thorough examination and search of the subject.

All Claims are believed to be in condition for Allowance, and that is so requested.

Claims 1, 2, 3, 8, and 10, have been amended.

Claims 11, 14-17, 19, and 20-72 have been canceled.

The making FINAL of the Restriction requirement is noted. Non-elected Claims 20-72 are hereby canceled. A divisional application will be filed to Claims 20-72 once the elected Claims are allowed.

Claims 16-17 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 16-17 have been canceled by amendment making this grounds for rejection moot.

Claims 1-18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Brady et al (US 6518885) in view of Endo et al (US 6165386). The Brady reference is directed to an ultra-thin IC package for use in RFID applications. The device includes a semiconductor chip 14 placed within an aperture of a circuit board 12. The chip 14 is then wire bonded to electrical traces 22, 24 of that substrate 12 and then encapsulated in resin 25. An antenna 112, 114 is formed of metal traces on the substrate surface. The chip 14 is electrically connected to the antenna 112, 114 via metal wire bonds 17, 19. There are important differences between the approach of the

Brady reference and that of the present invention. Brady et al do not use a conductive loaded resin-based material as the antenna as does the present invention. Also, the antenna device 22, 24 is not formed onto the encapsulating material 25. Rather the antenna device is formed of metal traces patterned onto the substrate 12. The antenna is not directly connected to a metal trace on the substrate through openings in an encapsulating layer as in the present invention. While the chip is connected to the antenna through the encapsulate 25, this is not analogous because a key feature of the present invention is the direct connection between the conductive resin antenna and the substrate metal trace through the encapsulating layer.

The Endo reference is directed to the formation of antennas on a substrate by printing a conductive resin that includes a conductive powder. One embodiment (Figs. 11 and 12) is directed to integrating the conductive resin antenna 21 with an integrated circuit 23. However, the conductive resin of Endo does not include micron conductive fiber as in the present invention. Rather, the conductive resin is only described with conductive powder – no reference is made to the inclusion of conductive fiber. In addition, the conductive resin antenna 21 of Endo is printed onto a substrate 22 rather than formed onto a separate encapsulating layer as in the present invention. Also, the conductive resin antenna 21 does not directly connected to a metal trace on the substrate through openings in an encapsulating layer as in the present invention.

Applicant has amended Claim 1 to better distinguish the features of the present invention from those of the prior art. In particular, Amended Claim 1 makes clear features wherein 1) the conductive loaded resin based material includes micron conductive fiber in a resin host; 2) the conductive resin antenna is formed onto the

encapsulating layer – not onto the substrate; and 3) the conductive resin antenna is directly connected to a metal trace (formed onto the substrate) through an opening in the encapsulating layer. These features are not taught or suggested by the prior art of Brady in view of Endo as applied in the present action nor, as will be discussed below, in the prior art of Miller in view of Endo. Additional Claims have been amended to maintain proper antecedent basis in depending claims or canceled due to newly created redundancies. No new matter has been added.

In light of amended Claim 1 and the several features distinguishing applicant's claimed invention from the prior art, reconsideration of the rejection under 35 USC 103(a) is requested for Claim 1 and for the remaining depending claims.

Claims 1 and 19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al (US 6200829) in view of Endo et al (US 6165386).

The relevant above remarks regarding the Endo patent are referenced. The Miller reference is directed to a microelectronic assembly. The assembly includes a metal trace antenna 14 formed onto a first side of a substrate 60. An IC chip 16 is mounted in a cavity of the substrate 60 and wire bonded to a metal trace 18 on a second side of the substrate 60. The metal trace 18 is connected to the antenna 14 by a bonding agent of conductive material. However, the antenna 14 is formed on the substrate 60 rather than on an encapsulating layer as in the present invention. Also, the metal trace 18 and the antenna 14 are connected through the substrate 60 rather than through an encapsulating layer. Finally, a third material, the bonding agent, is used to connect the metal trace and antenna, while the conductive loaded, resin-based antenna of the present invention connects directly to the metal trace without an intervening material.

As described above, these features are recited in amended Claim 1 yet are not taught or suggested by the prior art of Miller in view of Endo as applied in the present action. In light of amended Claim 1 and the several features distinguishing applicant's claimed invention from the prior art, reconsideration of the rejection under 35 USC 103(a) is requested for Claim 1 and for depending claim 19.

Accordingly, Applicant respectfully submits that the claims are in condition for allowance and that a timely Notice of Allowance be issued in this case. The Examiner is invited to contact the below listed attorney if the Examiner believes that a telephone conference will advance the prosecution of this application.

Respectfully submitted,



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